# one
by APOGEE

**User's Guide**

May 2009

APOGEE

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# Package Contents

The following items should be included in the ONE package:

USB Cable

ONE

Breakout Cable

QuickStart Guide

Software & Documentation CD

# Introducing ONE

ONE is the pocket-sized USB audio interface featuring the award-winning sound quality that made Apogee Electronics famous. Designed to work easily with Apple's GarageBand, ONE empowers you to create professional recordings anywhere.

With ONE, you can record a single channel of audio using a specially tuned internal microphone, an instrument input for guitar, bass or keyboard, or a world-class microphone pre amp input.

Listening with ONE is an entirely new experience as well. Hear your recordings and your iTunes library with incredible dimension and clarity through ONE's studio-quality stereo outputs.

**Register your Apogee product and receive these benefits:**

- Access to live tech-support
- Software and firmware updates via email
- User's guide updates via email
- Recording tips and tricks
- Invitations to exclusive live events
- Find out about new products first

You can register during the software installation or on the Apogee website:
**www.apogeedigital.com/register/**

# Quick Start

This Quick Start section describes how to set up ONE with your Apple Macintosh computer, connect speakers or headphones to play back music and podcasts with iTunes, and connect mics and instruments to record and play back your own creations with GarageBand.

## System Requirements

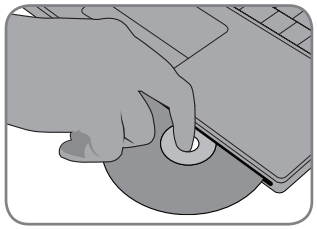
Your Mac should meet the following requirements:

- Intel or PPC G5 processor, OS X 10.5.7 or greater
- 1 GB minimum of installed RAM, 2 GB recommended

## Getting Started

### Install Apogee Software

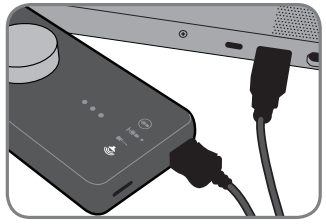
Insert the included CD into your Mac, double click the “ONE Software Installer” icon, and follow on-screen instructions. When the installation is complete you will be required to restart your Mac.



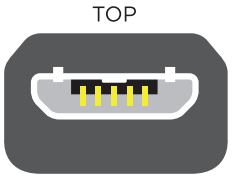
Please check http://support.apogeedigital.com for updated ONE software.

### Connect the USB cable

After restarting your Mac, connect ONE’s USB port to a USB port on your Mac, using the provided cable.



When connecting the USB cable to ONE, be sure to properly orient the connector with the flat side up (as shown at right) before inserting it.



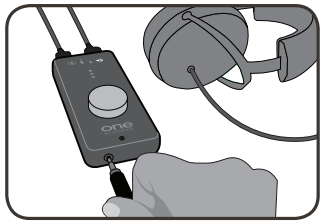

As ONE is powered through the USB connection, the LED will light, indicating that ONE is now powered on.

### Choose ONE for Mac Sound I/O

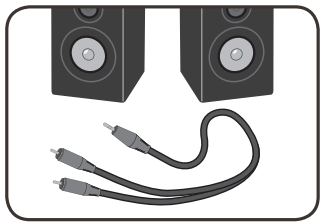
After connecting ONE to your Mac, the dialog box shown at the left will appear. Click Yes.

### Connect Headphones or Speakers

Connect headphones to ONE’s front panel jack.

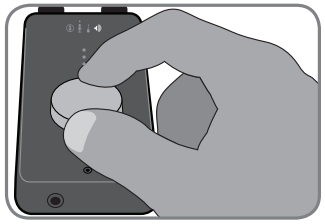


It’s also possible to connect a pair of powered speakers to the jack using an adapter cable. The cable should have an 1/8” stereo jack to connect to ONE and two suitable jacks for connection to the speakers.

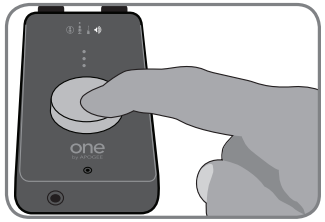


**Open iTunes and Play**
Open iTunes (found in your Mac's Applications folder), choose a selection, and click **Play.**

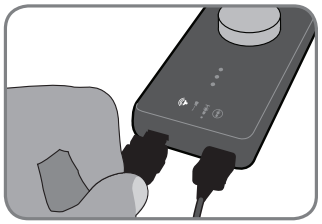
**Adjust Volume**
If the LED on ONE's top panel is lit, turn the top panel encoder clockwise to raise the output volume. You should now hear the iTunes selection playing through your headphones or speakers.



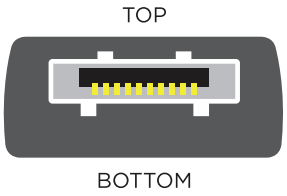
If another Encoder Function LED is lit, click the encoder once until the LED is lit, then turn the encoder.



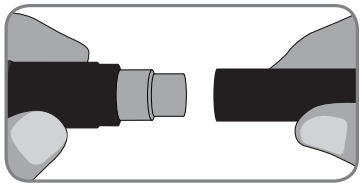
**Configure ONE's Input**
Connect the supplied input breakout cable to ONE's back panel connector.



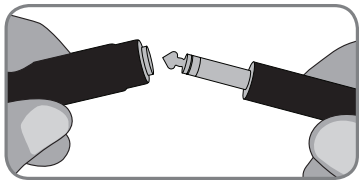
Be sure to properly orient the breakout cable connector so that the contact pins are on the bottom (as shown here)




Connect a microphone to the breakout cable's (XLR) input



or an instrument to the (1/4") input.



Open Apogee Maestro software, installed in your Mac's Applications folder.

In the Maestro Control window, select one of the following options from the Input menu:

**Int Mic** - to use ONE's internal mic

**Ext Mic** - to use a mic connected to the input

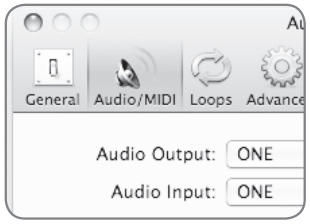
**Ext 48V Mic** - to use a phantom-powered mic connected to the input

**Inst** - to use an instrument connected to the input.

**Open and Set Up GarageBand '09**
Open GarageBand, found on your Mac's Applications folder. In the Project Window that appears during launch, click **Voice** or **Acoustic Instrument** then click **Choose** to create an audio track.

In GarageBand, show the Track Info pane by double-clicking the track icon, then click **Real Instrument**. At the bottom of the window, select **Mono 1 (ONE)** in the Input Source menu and select **On** in the Monitor menu.

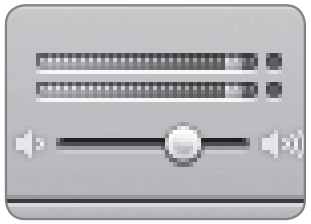
**GarageBand Preferences**
If ONE doesn't appear in the Input Source menu, open GarageBand Preferences (GarageBand > Preferences), click **Audio/MIDI**, and select **ONE** in the Audio Output and Audio Input menus.




Important! To experience the full audio resolution of ONE, open GarageBand Preferences, click **Advanced**, and select **Best** in the Audio Resolution menu.

**Set the Input Level**
Click the GarageBand track's Record enable button to see the input signal on the track meters and hear it in your headphones.

Click ONE's encoder until the input LED lights ( or as chosen on page 4) and turn the encoder to set the recording level in GarageBand's meters. See page 22 of this guide for a more detailed description of setting recording levels.



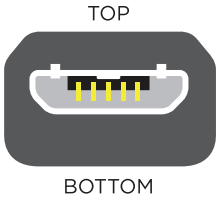
**Record!**
Once you've set a level, click the Record button in GarageBand's transport control. The newly created region appears in GarageBand's timeline - you're now recording with ONE!

# Connecting ONE

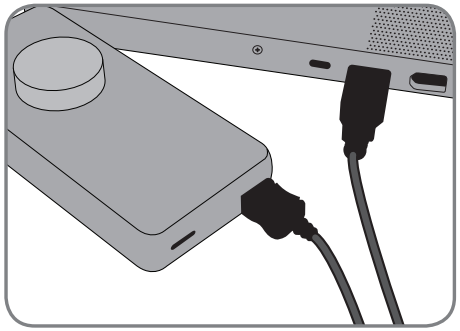
In this section, the connection of ONE to your Mac, headphones, speakers, microphones and other audio hardware devices is described.

## Connecting an Apple Macintosh computer

- Using the provided USB cable, connect the Micro-B connector to ONE's back panel connector. Be sure to properly orient the USB cable with the flat side up (as shown at right) before inserting it. Connect the Type A connector to your Mac computer.

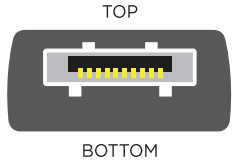



- For the best system stability, it's recommended to connect directly to your Mac's USB port, without passing through a USB hub.
- It is highly recommended to install Apogee software as described on page 3. If Apogee software isn't installed, it's possible to set most parameters in OSX's Audio MIDI Setup, as described on page 12.

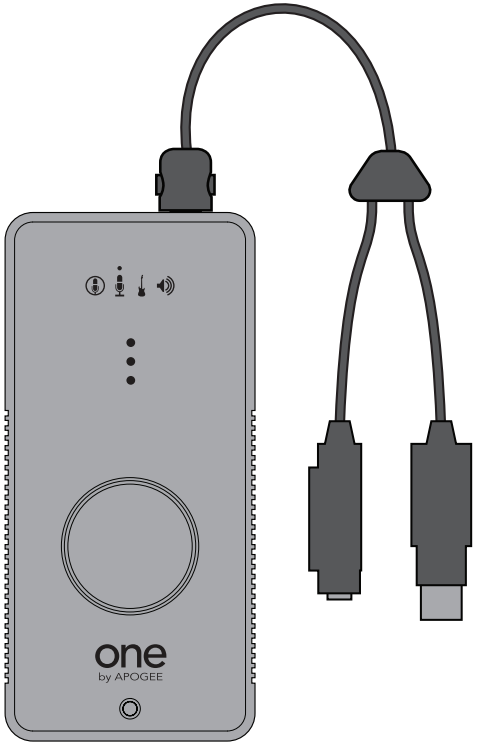


## Connecting ONE's breakout cable

- To connect an input, first it's necessary to connect ONE"s breakout cable to the back panel connector.
- Be sure to properly orient the breakout cable connector so that the contact pins are on the bottom (as shown at right).

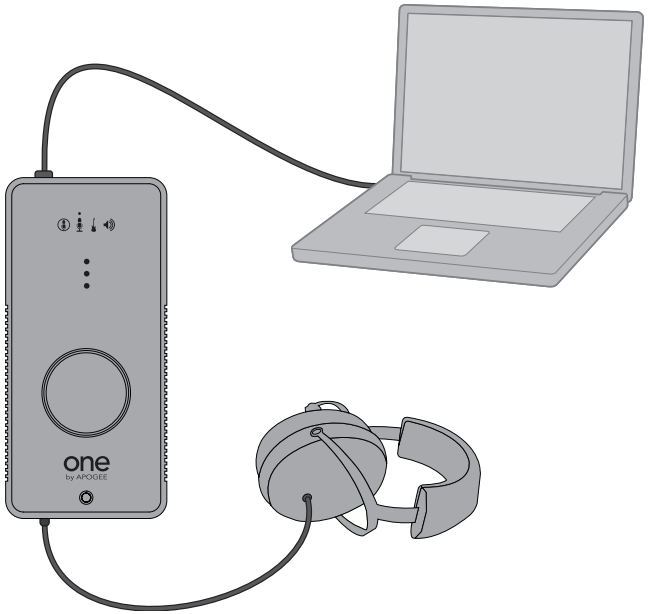



- Ensure that the breakout cable connector snaps into place. To disconnect the breakout cable, press in the buttons on either side of the connector and pull out.



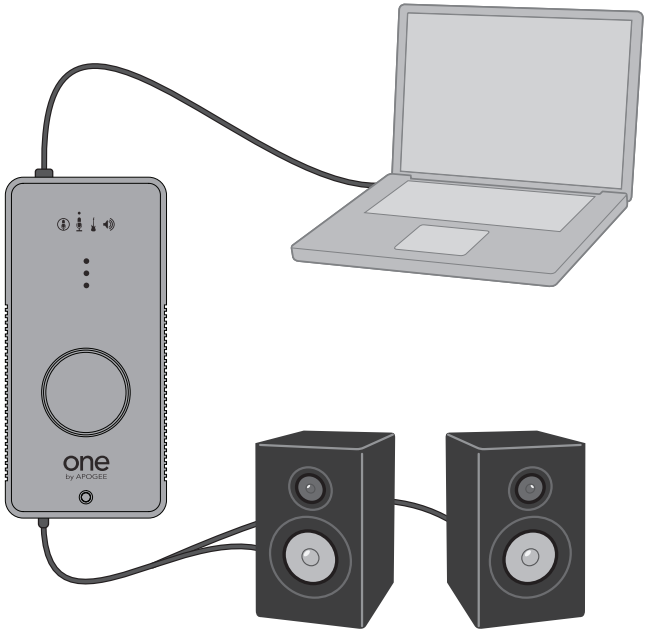
## Connecting Headphones

- Connect headphone directly to ONE's front panel jack. If your headphones include a 1/8" to 1/4" adaptor, remove it before making the connection.
- Open Apogee Maestro software and select **Stereo** in the Output Level menu.




## Connecting Powered Speakers

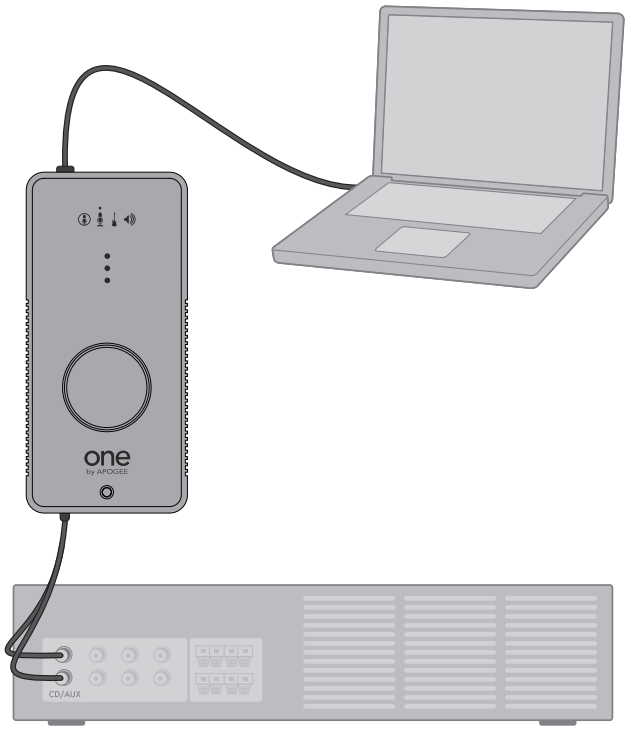
- Connect powered monitors to ONE's front panel jack using an adaptor cable with an 1/8" stereo plug to connect to ONE and two suitable plugs for connection to your speakers.
- Open Apogee Maestro software and select **Stereo** in the Output Level menu.




- To set the speakers' input level control (sometimes labelled input sensitivity), please see the description on page 24.
- If hum or buzz is heard in the speakers, please see the Troubleshooting tip on page 29.

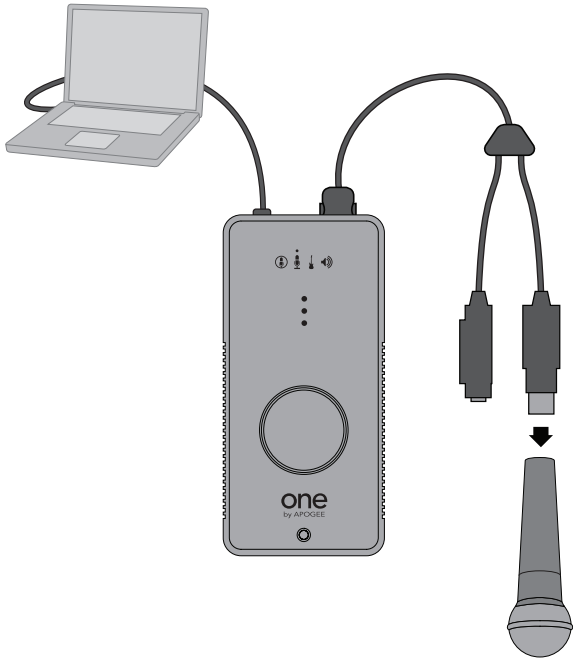
## Connecting a Home Stereo

- Connect a home stereo to ONE's front panel jack, using an adaptor cable with an 1/8" stereo plug to connect to ONE and two RCA plugs to connect to the stereo component's CD or Aux input.
- Open Apogee Maestro software and select **Stereo** in the Output Level menu. Set the output level to 0 dB, and use the stereo component's level control to set the listening level.




## Connecting a Microphone

- Connect ONE's breakout cable to the rear panel connector, and connect the microphone to the ONE breakout cable's (XLR) input.
- Open Apogee Maestro software and select **Ext Mic** in the Input menu. When using a phantom-powered mic, select **Ext 48V Mic**. To answer questions concerning 48V phantom power, please see page 24.




- If your microphone is equipped with a 1/4" mono jack output, connect it to the breakout cable's (1/4") input.
- In the Maestro Input menu, select Inst.

## Connecting an Instrument and Amplifier

It's possible to connect your instrument to ONE's input, process the sound using Apple Mainstage (or another audio application) and route the output to your amplifier.

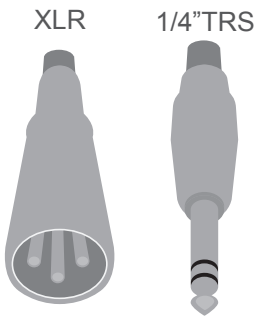
- Connect a guitar, bass or keyboard to the ONE breakout cable's (1/4") input.
- Open Apogee Maestro software and select **Inst** in the Input menu.
- Connect an instrument amp to ONE's front panel jack using an adaptor cable with an 1/8" stereo plug to connect to ONE and two 1/4" TS plugs to connect to a stereo instrument amp. If the amp is one channel, use one 1/4" TS plug only.
- Select **Amp** in the (Output) Level menu.

## Connecting a Line output (CD, Mixing console)

As a general rule, it's recommended to connect balanced sources to ONE's (XLR) input and unbalanced sources to ONE's (1/4") input. Open Apogee Maestro software and select the appropriate connection in the Input menu.

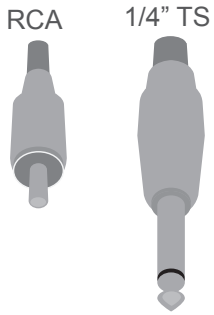
- In most cases, signals transmitted via XLR or TRS (tip-ring-sleeve) 1/4" connectors (shown below) are balanced.
- Connect XLR ouputs directly to ONE's (XLR) input.
- Connect 1/4" TRS outputs using a 1/4" TRS to XLR male adaptor.

**Balanced**




- Signal transmitted via RCA or TS (tip-sleeve) 1/4" connectors (shown below) are unbalanced. Unbalanced connections are most often found on instruments, CD players and other consumer audio hardware.
- Connect 1/4" TS connectors directly to ONE's (1/4") input.
- Connect RCA outputs using an RCA to 1/4" TS adaptor.

**Unbalanced**



# Hardware and Software Controls

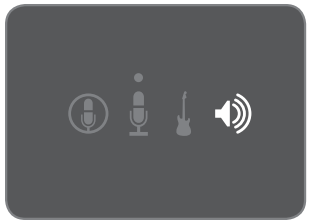
ONE is designed to be simple to use but controllable with a variety of hardware and software controls, described in this section. Though several options are offered, you can choose the hardware and software controls that best suit your individual preferences.

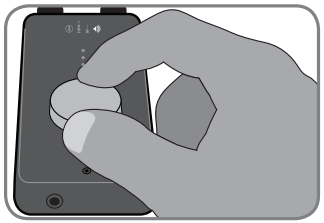
## ONE Top Panel Encoder

ONE's top panel encoder provides simple and immediate control of input and output level settings.

### Setting the Output Level

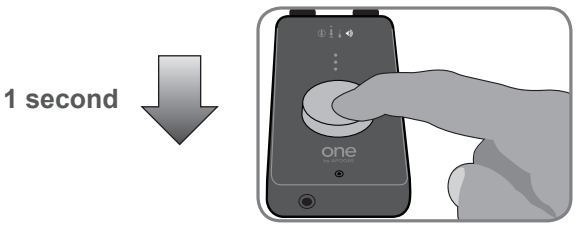
To set ONE's output level (i.e the listening level of headphones or connected speakers), click the encoder until the LED lights. Now, turn the encoder to the desired listening level.





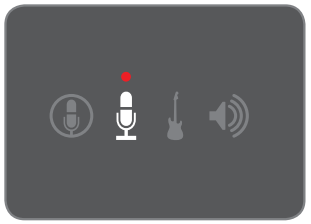
### Muting the Output

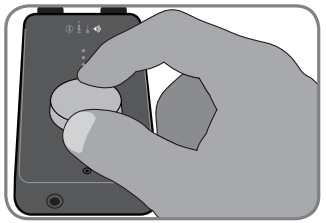
To mute the output, press and hold down the encoder until the LED blinks; press and hold again to unmute the output.




### Setting the Input Gain

To set the gain (i.e the recording level) of ONE's active input, click the encoder until the input LED ( or ) lights. Now, turn the encoder until the desired recording level is obtained (as seen in your recording software).





To select another input as the active input, open a software control panel (either Apogee Maestro or Audio MIDI Setup) and select the desired input, as described on the following pages.

### Top Panel 48V Indicator

When Input is set to Ext 48V Mic, a red LED above the LED lights to indicate the presence of 48 volt phantom power on the breakout cable's XLR connector. This voltage is necessary to power condenser mics. Read more about phantom power on page 24.

### Top Panel 3-Segment LED Meter

The top panel level meter displays either the input or output level, depending on the encoder selection.

- When an input has been selected, meters display the level of the signal *after* the input gain.
- When the output has been selected, meters display the level of the signal *after* the output level control.

See page 29 for information about the difference between the top panel meters and Apogee Maestro meters.

## OS X Audio MIDI Setup

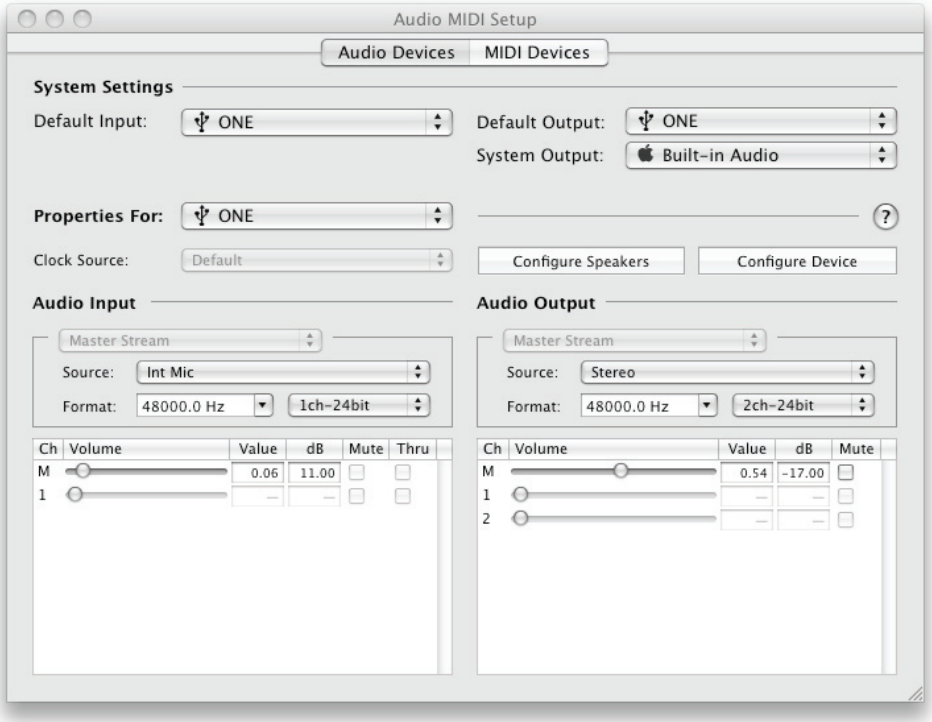
The OS X utility Audio MIDI Setup provides settings to choose ONE for Mac sound input/ output and control ONE's parameters. To open Audio MIDI Setup, choose Applications > Utilities > Audio MIDI Setup.

### Selecting ONE for Mac Sound Input/Output

- Select **ONE** in the Default Input menu.
- Select **ONE** in the Default Output.
- Leave System Output set to Built-In Audio to hear OS X alert sounds and user interface sound effects via the Mac's built-in speakers.

### Controlling ONE's Input/Output Parameters

- Select **ONE** in the Properties For menu.
- Select the active input in the Audio Input Source menu:
  - Select **Int Mic** to use the internal mic;
  - Select **Ext Mic** to use a mic connected to the breakout cable's (XLR) input;
  - Select **Ext 48V Mic** to use a phantom-powered mic connected to the input;
  - Select **Inst** to use an instrument connected to the input.
- To set ONE's input gain, use the Volume slider under Audio Input.
- Select an output operating characteristic in the Audio Output Source menu:
  - Select **Stereo** when connecting ONE to headphones, powered speakers, a mixing console or a home stereo;
  - Select **Amp** when connecting ONE to an instrument amplifier.



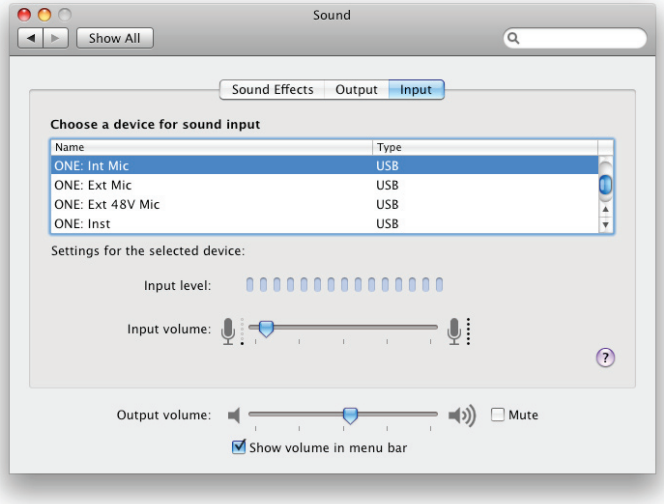

### Setting ONE's Sample Rate

ONE operates at a sample rate of 44.1kHz or 48kHz . In most cases the sample rate is set by the audio application with which ONE is streaming audio. For example, when working with GarageBand, ONE's sample rate is automatically set to 44.1kHz, to match the GarageBand song's sample rate. For those audio applications that don't include a sample rate selection, such as Apple's iTunes, ONE's sample rate may be selected in either Format menu under Audio Input or Audio Output. For more information on *which* sample rate to work at, see page 23.

## OS X System Preferences - Sound

The OS X System Preferences Sound window provides settings to choose ONE for Mac sound input and output and control ONE's input/output parameters. If you didn't choose ONE for Mac sound I/O in step 3 of the Quickstart guide, you may do so in this window.

- Choose Apple > System Preferences and click Sound.
- Click Output.
- In the devices list, select an operating characteristic for ONE's output:
  - Select **ONE: Stereo** when connecting to headphones, powered speakers, a mixing console or a home stereo.
  - Select **ONE: Amp** when connecting to an instrument amplifier.
- Set ONE's output level with the Output volume slider.
- Click Input
- In the devices list, select the active ONE input:
  - Select **ONE: Int Mic** to use the internal mic;
  - Select **ONE: Ext Mic** to use a mic connected to the breakout cable's (XLR) input;
  - Select **ONE: Ext 48V Mic** to use a phantom-powered mic connected to the input;
  - Select **ONE: Inst** to use an instrument connected to the input.
- Set ONE's input gain with the Input volume slider.



## Apogee Maestro

Apogee Maestro software provides the most complete control of ONE, including control of all parameters, store/recall of configurations and low-latency mixing. To open Maestro, choose Applications > Apogee Maestro.

Maestro consists of two windows, Maestro Control and Maestro Mixer, described below.

### Maestro Control

Interface Menu - When multiple Apogee interfaces are connected to the Mac, this menu is used to select the interface whose settings are displayed in Maestro.

**Identify Unit** - Clicking on this button verifies that communication is established between Maestro software and ONE hardware by lighting the four top panel Encoder Function LEDs. Click the button again to return the LEDs to normal operation.

**Input** - Select ONE's active input in this menu:
Select **Int Mic** to use the internal electret microphone mounted on ONE's top panel, just below the encoder knob.
Select **Ext Mic** to use a mic connected to the breakout cable's (XLR) connector.
Select **Ext 48V Mic** to use a phantom-powered mic connected to the input;
Select **Inst** to use an instrument connected to the input.

**Input Level Software Encoder** – The gain of the selected input is controlled from this software encoder. The gain value is indicated in the box to the right of the encoder.

**Input Meter** - this meter displays input level and digital overs after conversion from analog to digital.

## Maestro Control - *continued*

**Output Level** - Select the operating characteristics of ONE's output in this menu:

Select **Stereo** when ONE's output is connected to headphones, powered speakers, a mixing console or a home stereo

Select **Amp** when ONE's output is connected to an instrument amplifier. ONE's output level is fixed (i.e. hardware and software output level controls won't change the output level) and reduced to a level better suited for instrument amplifier inputs.

**Output Level Software Encoder** – The output level may be controlled from this software encoder. The level value is indicated in the box to the right of the encoder.

**Output meter** - this meter displays output level and digital overs before conversion from digital to analog.

**Mute** - Checking this box mutes ONE's output.

## Maestro Mixer - *Overview*

Before describing the functions of Maestro's Mixer window, a bit of background information concerning latency and computer-based digital recording setups will help to better understand these Mixer functions.

When recording with most computer-based digital audio applications, a delay between the input and output of the recording system often disturbs the timing of the musicians who are performing. This delay, known at latency, means that the musician hears the notes he produces a few milliseconds after having produced them. As anyone who has spoken on a phone call with echo knows, relatively short delays can confuse the timing of any conversation, spoken or musical.

To illustrate the effect of latency, figure A depicts the typical signal path of a vocal overdub session. A vocalist sings into a microphone, which is routed through a hardware interface to the audio software application for recording. In the software application, the vocalist's live signal is mixed with the playback of previously recorded tracks, and routed back through the hardware interface to the vocalist's headphones. Because of the audio application's latency, the vocalist hears his performance delayed by several milliseconds in his headphones.

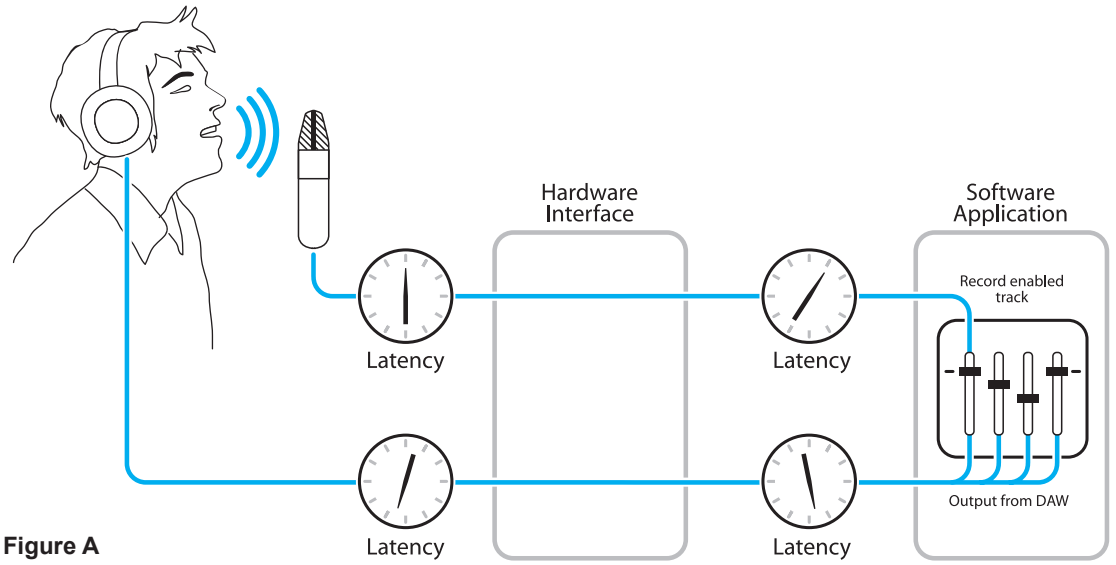



**Figure A**

By routing the hardware input directly to the hardware output and mixing in playback as shown in **Figure B**, it's possible to create a headphone listening signal with a much shorter delay.

First, the signal being recorded (in this case, a vocal mic) is split in the hardware interface and routed to both the software applicaton for recording and directly back to the hardware outputs *without* going through the latency-inducing software; this creates a low latency path from mic to headphones. Next, a stereo mix of playback tracks is routed to the low latency mixer and combined with the hardware input(s). This allows the performer to hear both himself without a confusing delay plus the playback needed for overdubbing.

Note that the software application's mixer is used to set a stereo mix of playback tracks while the low latency mixer is used to set the balance between the stereo playback mix and the hardware inputs.

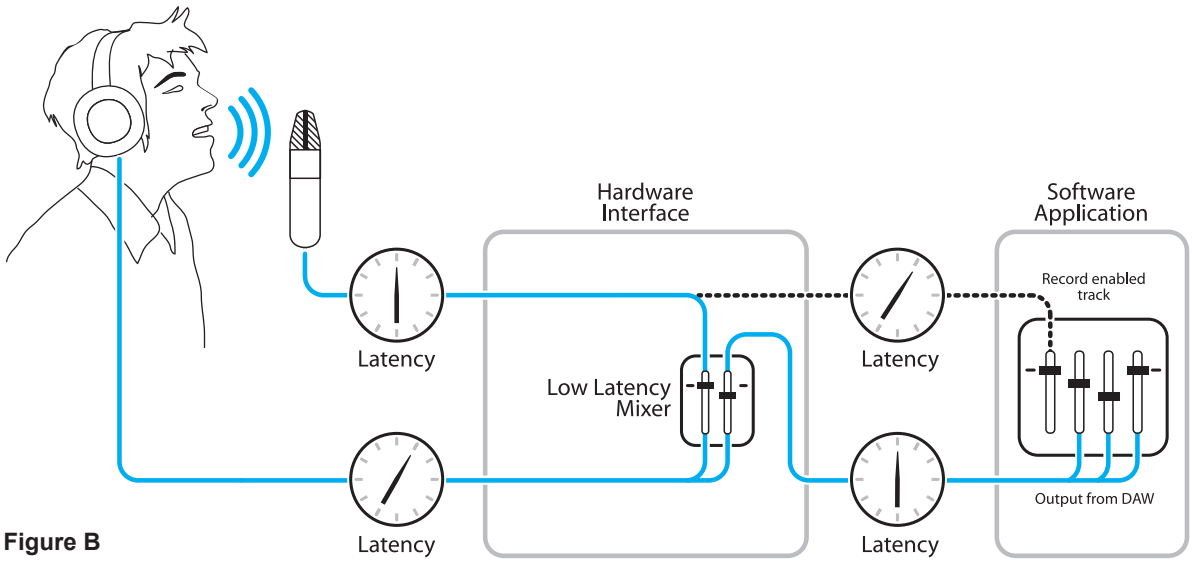



**Figure B**

## Do I need the Maestro Mixer?

The Maestro mixer serves to provide a low latency listening mix while recording. Therefore if you're using ONE to listen to iTunes or audio from another program, there's no need to use the mixer. Set To Hardware to None to disable the mixer.

It's also possible that the latency of your particular recording system is low enough to be unnoticeable by you or other performers. If you've set your audio software's input/output buffers according to the guidelines on page 22 and latency doesn't bother you or other performers, there's no need to use the Maestro mixer.

## Maestro Mixer - *Controls*

The following Maestro Mixer controls are used to create a listening mix while recording with ONE.

**Input 1** - This fader adjusts the level of ONE's hardware input in the listening mix. The input is routed to the center of the output stereo field. Adjust the Input gain (as described on page 5) before setting this fader.

**Input 1 meter** - this meter displays the input level after conversion from analog to digital.

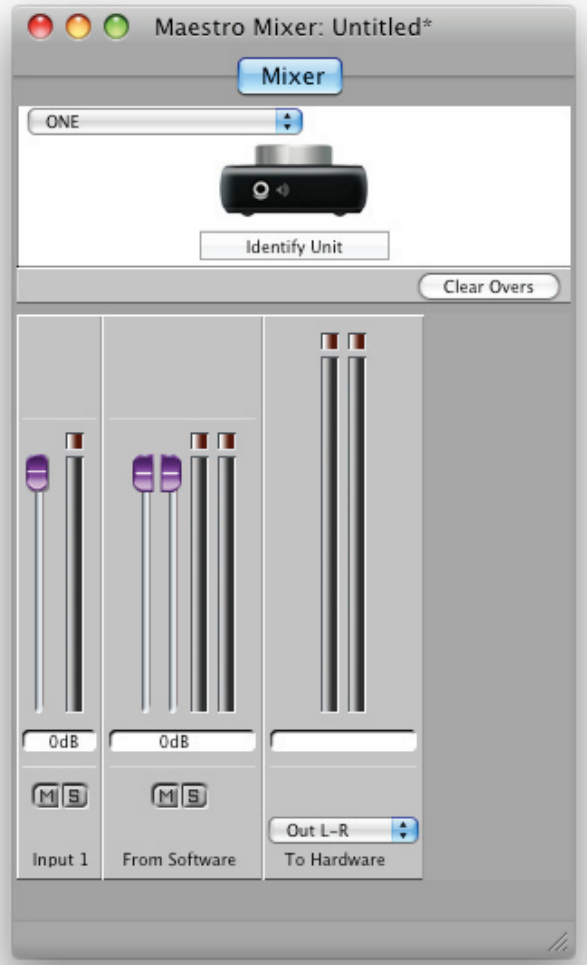
**From Software** - This fader adjusts the level of playback from audio applications in the listening mix.

**From Software meter** - This meter displays the audio application's playback level.

**Mute-Solo buttons** - These buttons allow the associated channel to be muted (M) or soloed (S). Soloing one channel mutes all other channels.

**To Hardware meters** - This meter displays the stereo output level of the Maestro mixer.

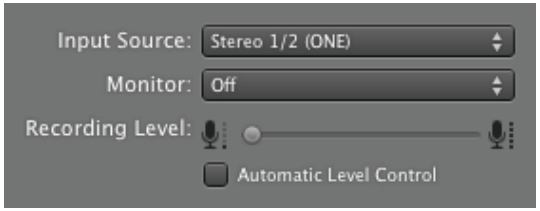
**To Hardware menu** - When this menu is set to None, the mixer is disabled and completely removed from the signal path.
When this menu is set to Out L-R, the Maestro Mixer is inserted between the software output and ONE's hardware output. When To Hardware is set to Out L-R, set the From Software fader to 0 dB to hear playback from iTunes or other Core Audio applications.



## Working with the Maestro Mixer - *Audio software settings*

When using the Maestro mixer, there are a few settings that must be made in your audio software.

**Software monitoring** - Turn off “software monitoring”, so that when a software track is actually recording, that track’s output is muted. As a result, signal is only heard through the Maestro Mixer.
In GarageBand, this control is found at the bottom of the Track Info pane and is called “Monitor”. When using the Maestro Mixer, select Off in the Monitor menu.



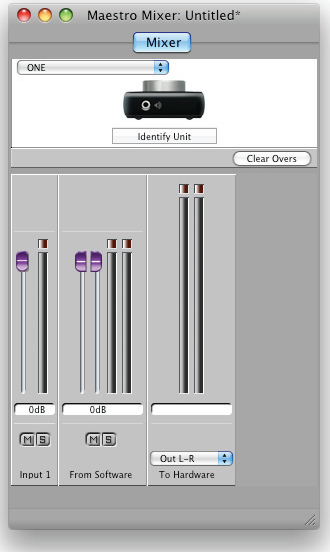

**Playback mix** - In your recording software, set up a mix of all playback tracks and route it to Out L-R. If a master fader controls the global output of the mix, it’s suggested to set the fader to 0 dB.

## Working with the Maestro Mixer - *Maestro settings*

Here are a few hints to set up the Maestro Mixer:

Initially, set the Input and From Software faders to 0 dB. Set the To Hardware menu to Out L-R.

After selecting the active input and setting gain (as described on page 5), the signal should be displayed on both the Input and To Hardware meters. If the Input’s Over LED lights, reduce the input gain in the Maestro Control window. If the To Hardware’s Over LEDs light, reduce the Input fader.



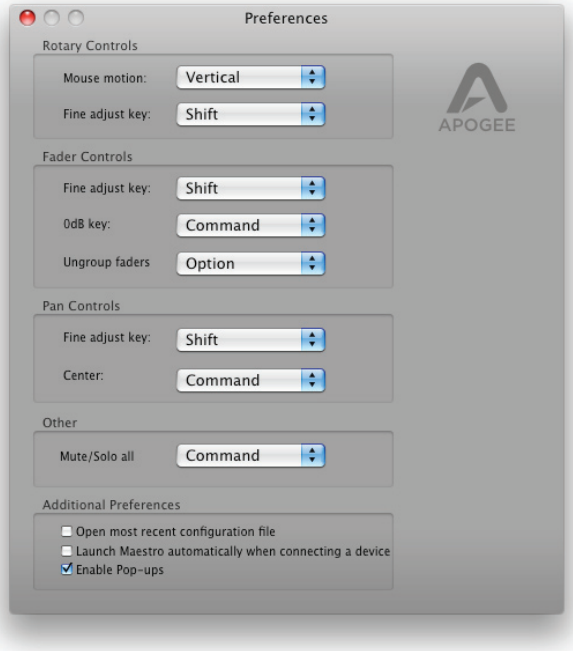

Now start playback from the session. The playback signal should be displayed on the From Mac and To Hardware’s meters. Use the From Software and Input faders to establish a balance between the input and playback signals. If you’ve found a good balance but the To Hardware’s Over LEDs light, reduce the Input and From Software faders equally.

## Maestro Menus

### Apogee Maestro

**About Maestro** - Choose this menu item to display version info for Apogee hardware and software.
**Preferences** - Choose this menu item to display the Maestro Preferences pane, shown below and described on the facing page.
**Hide Maestro** - Choose this menu item to hide Maestro.
**Hide Others** Choose this menu item to hide all other open applications.
**Show All** - If Hide Others has been previously selected, choose this menu item to reveal all open applications in the Finder.
**Quit Maestro** - Choose this menu item to quit Maestro.

### Preferences




## Preferences - *continued*

**Rotary Controls**
**Mouse motion** – This selection defines the motion of the mouse required to adjust rotary controls.
**Fine adjust key** – This selection defines the key command to make fine adjustments to any rotary control.
**Fader Controls**
**Fine adjust key** - This selection defines the key command to make fine adjustments to any fader control.
**0dB key** – This selection defines the key command to set the fader to 0 dB when clicking in the level value window.
**Ungroup faders** - This selection defines the key command to adjust one side of the stereo **From Mac** and **To Hardware** faders.

**Pan Controls**
**Fine adjust key** - This selection defines the key command to make fine adjustments to any pan control.
**Center** - This selection defines the key command to set the pan control to <0>, or center, when clicking in the pan value window.
**Other**
**Mute/Solo al**l - This selection defines the key command to engage all Mutes or Solos when clicking on the Mixer Mute or Solo buttons.

**Additional Preferences**
**Open most recent configuration file** - Check this box to automatically open the most recently saved configuration file when Maestro is launched.
**Launch Maestro automatically when connecting a device** - Check this box to launch Maestro when any Apogee interface is detected during start up of the Mac or when devices are hot-plugged.
Check both boxes above to automatically launch a specific configuration file at start up or hot-plug.
**Enable Pop-ups -** Check this box to enable Pop-ups, icons that appear on the Mac display when the ONE hardware encoder is rotated to indicate the encoder's current function and relative level. Two example Pop-ups are shown below.

## Maestro Menus - *continued*

### File

**Open** - Choose this menu item to navigate to a previously saved Maestro configuration file and open it.
**Open Recent** - Choose this menu item to re-open a recently opened Maestro configuration file.
**Close Window** - Choose this menu item to close the “active”, or up-front, window.
**Save** - Choose this menu item to save the current settings of all windows.
**Save As** - Choose this menu item to save the current settings of all windows as a newly named file.

### Tools

**Maestro Control** - Choose this menu item to open the Maestro Control window.
**Maestro Mixer** - Choose this menu item to open the Mixer window.
**Reset Symphony Clocking** - Choose this menu item to reset hardware connected to a Symphony system. If a Symphony system isn’t connected to the Mac, this item is greyed out.
**Refresh Connections** - Choose this menu item to re-scan computer connections for connected Apogee hardware.
**Reset Mixer** - Maestro mixers may be reset with this menu item; choose **Reset Displayed** to reset the mixer displayed in the Maestro Mixer window; choose **Reset All** to reset all mixers.
**Reset Routing** - Choose this menu item to reset routing on supported interfaces to default. ONE’s routing is not assignable, thus this menu item is greyed out when only ONE is connected.

### Window

**Minimize** - Choose this menu item to minimize the up-front window to the OS Dock.
**Zoom** - Choose this menu item to maximize the size of the active Maestro window.
**Bring All to Front** - Choose this menu item to place all Maestro windows in front of other applications’ windows.

# Working With ONE

In this section you'll find answers to questions that might arise while using ONE as part of a Mac-based recording system.

## How do I set a recording level?

Once your microphone or instrument is connected, your audio software is configured and you've created a new recording track, just how do you set the input gain for a proper recording level in your audio software? There's no simple answer, but with a few guidelines and a bit of experience, you can master setting a proper level.

Ideally, the input gain should be set so that when the input signal is at its loudest, the level in audio software (or in Maestro) is just below maximum without lighting the Over indicator.

In reality, it's unlikely that you'll be able to guess just the right gain setting to accomplish this - when your gain is too low, the signal never gets close to maximum and when your gain is too high, a digital Over may occur. Now, with a 24-bit system (such as ONE), the noise floor is so low that there's no real penalty for undershooting the gain setting and recording at a lower level. There IS a penalty for overshooting the gain setting - a digital Over that results in significantly increased distortion. Thus, it's better to work with a recording level that's a bit too low than a level that's a bit too high.

Just how much to undershoot the gain setting is determined by the nature of the sound being recorded. As a general rule, instruments such as bass and organ have a more consistent level than percussive instruments, such as a tambourine, and may be recorded at a higher level. Also, the performer's skill and playing style can dictate more or less caution when setting levels. As you gain experience, you'll be able to more accurately set a good recording level while avoiding digital overs.

## How do I set my software's I/O buffer?

The I/O Buffer setting found in most audio software is one of the most crucial, but often ignored, settings in a Mac-based recording system.

When choosing a buffer setting, a compromise between the latency through the application and the amount of computer processor power accessible to the application must be made. A lower buffer setting results in lower latency but less available processing power. If the application can't access enough processor power, processor overruns may occur, resulting in audible clicks and pops or error messages that interrupt playback and recording.

A higher buffer setting, on the other hand, results in greater amount of accessible processor power (i.e. less chance of overruns) but increases the latency. Determining the best setting requires some trial-and-error in order to find the best compromise.

Keep in mind that as tracks and plug-ins are added to a software session, processor requirements increase. Thus, the buffer setting that works during the early stages of a session might result in processor overruns during later stages.

## I/O buffer continued

The best strategy is to set the buffer to a lower setting during recording and accept certain limitations on plug-in usage, and then raise the buffer during mixing to utilize the computer's full processor power when latency isn't an issue.

With the processing power of today's Macs, you may find that adjustment of the buffer isn't necessary, and you can leave it at a setting for low latency and still access a sufficient amount of processing power when adding tracks and plug-ins. If you do encounter clicks, pops or software errors, don't hesitate to experiment with the buffer setting.

Please consult the section "Configuring Core Audio Applications" (starting on page 25) to determine where the I/O buffer setting is found in your audio application.

## What sample rate should I record at?

ONE offers a choice of two sample rates, 44.1kHz or 48kHz. So, what's the best sample rate to record your project at? It's a good idea to avoid unnecessary sample rate conversion stages, so the answer is determined by the sample rate of media on which you plan to distribute your recording. If the final distribution media is CD, record at 44.1kHz. If the media is video or TV, most often 48 kHz is the best choice. If you're part of a larger production chain, and aren't sure, ask whomever is responsible for assembling the final product - they'll undoubtedly appreciate the forethought.

## Can I record my session on the startup hard drive?

It's an accepted "best practice" of most audio software providers that audio files should be recorded on a hard drive other than the Mac's Startup drive (i.e. the drive on which the operating system is installed). You can probably get away with recording a few tracks to your computer's Startup disk, but for the best performance of your ONE recording system, record onto a separate ATA/IDE, SATA, or FireWire drive whose spindle speed is at least 7200 RPM.

## How do I set the input control of my powered speakers?

Most powered speakers offer an input volume control, often labelled as input sensitivity. Rather than describe an overly complicated method for setting this control, the easiest way to determine the right setting is to note where you generally set ONE's output level. If you find yourself rarely turning the output past a very low output level (say, -35 dB), decrease the input sensitivity on the speaker. If, on the other hand, you find yourself setting ONE for full output and the speakers aren't loud enough, increase the input sensitivity. Ideally, ONE's output should be at 0 dB when you're listening at your absolute maximum desired volume.

## What is phantom power?

Phantom power (also known as 48 V) is a DC voltage necessary to power condenser microphones such as the Neumann U87 or AKG 414. If you're connecting a condenser mic to ONE, be sure to select Ext 48V Mic in the Maestro Control Input menu.

Through a bit of electronic trickery, phantom power is supplied *to* the mic via the same cable used to transmit the audio signal *from* the mic.

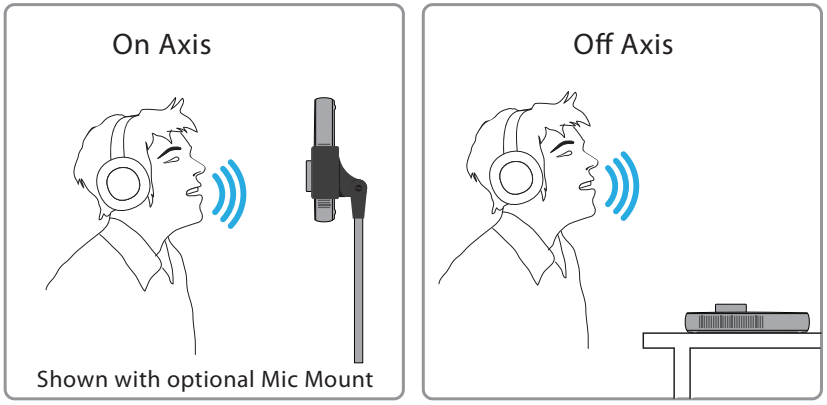
There are a few precautions to take when using phantom power.

- Don't connect a ribbon mic when phantom power is on.
- Mute headphones or speakers before toggling 48V on or off.

## Using ONE's internal mic

ONE includes an internal mic for those instances when you want to record quickly and easily - to preserve an inspiration, capture an ambience or record a conversation. Once you've selected Int Mic as ONE's active input, here are a few hints for getting a great sound.

Placement - ONE's internal mic has been designed to provide a clear, precise sound even when off-axis to the source source (i.e. ONE's top panel isn't directly facing the sound source). By changing the angle of ONE to the sound source, it's possible to vary the amount of presence in the captured sound.



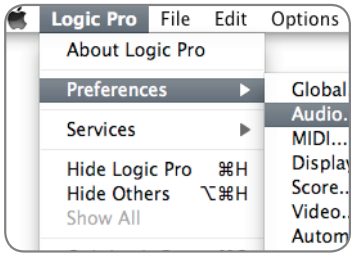

Setting Levels - When using ONE's internal mic, set input gain and output level with a software control panel (described on pages 11-15) to avoid picking up the mechanical noise that occurs when rotating the top panel encoder.

*Caution!* - For the best audio quality, the top panel mic aperture provides an unimpeded acoustic path to the mic capsule. Take care to prevent sharp objects from entering the aperture.

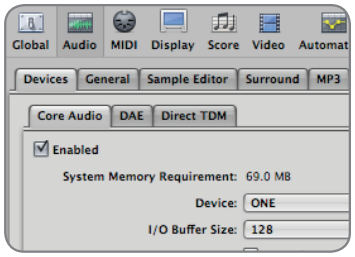
# Configuring Core Audio Applications

## Logic Pro/Express

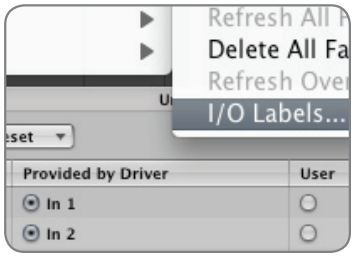
In Logic Pro, choose Logic Pro > Preferences > Audio. Click Device, then click Core Audio.




In the Core Audio pane, select **ONE** in the Device menu.
Set Buffer Size to an initial value of 128. Please see page 22 for information on determining the best I/O Buffer Size value.
Set Bit Depth to **24**

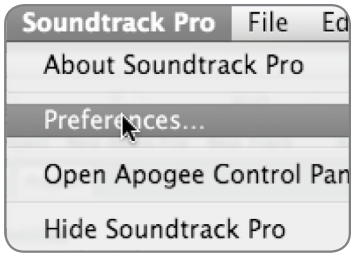



To use ONE's I/O labels in Logic, choose Options > Audio > I/O Labels.
Option-click the first radio button under the Provided by Driver column.




## Soundtrack Pro

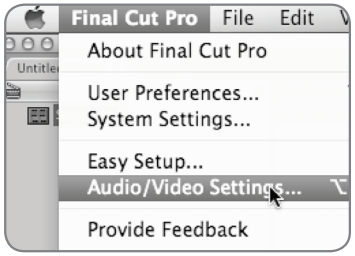
Choose Soundtrack Pro > Preferences.



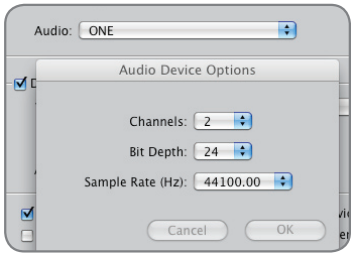

Click Recording.
Select **ONE** in both the Input and Monitor menus.
Close the Preferences window after making settings.

## Final Cut Pro

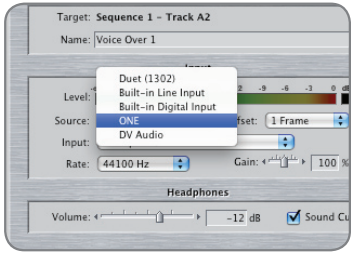
Choose Final Cut Pro > Audio/Video Settings.




Click on the A/V Devices tab. Select ONE in the Audio menu. Click the Options button, and be sure that Bit Depth is set to **24**.




To use ONE with Final Cut Pro's Voice Over feature, choose Tools > Voice Over. Select **ONE** in the Source menu, and select the desired ONE input in the Input menu.

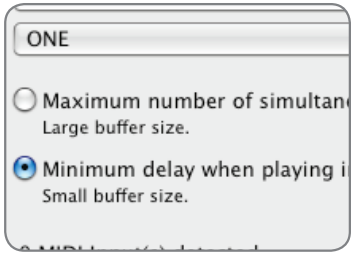



## GarageBand

Please see page 5 for instructions for using ONE with GarageBand.

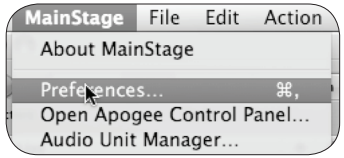
The Project Window mentioned in the instructions appears in GarageBand '09 only. If you're using GarageBand '08 or previous, access the Track Info pane by creating a Real Instrument track (choose Track > New Track) and double-clicking the track header.

GarageBand offers two buffer size settings, Large and Small. Please see page 22 for information on determining the best buffer size.



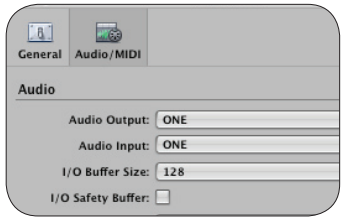
## MainStage

Choose MainStage > Preferences




Click Audio/Midi

Select ONE in the Audio Output and Audio Input menus




Set I/O Buffer Size to an initial value of **128**. Please see page 22 for information on determining the best I/O Buffer Size value.

Close the Preferences window after making settings.

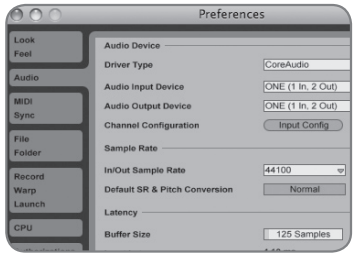
## Live

Choose Live > Preferences

Click on the Audio tab.

Select **CoreAudio** in the Driver Type menu.

Select **ONE** in both the Audio Input Device and Audio Output Device menus.

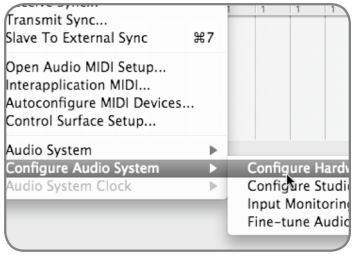



Set Buffer Size to an initial value of **128**. Please see page 22 for information on determining the best I/O Buffer Size value.

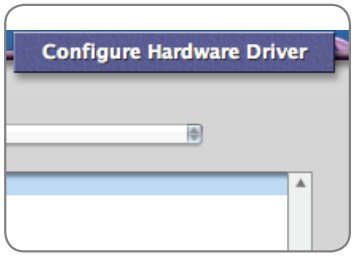
Close the Preferences window after making settings.

## MOTU Digital Performer

Choose Setup > Configure Audio System >Configure Hardware Driver




In the Configure Hardware Driver window, select **Core Audio** in the topmost menu.




Select **One** in the device list.

Set Buffer Size to an initial value of **128**. Please see page 22 for information on determining the best I/O Buffer Size value.

Set Host Buffer Multiplier to **1**.

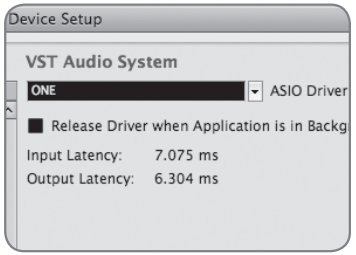
Set Work Priority to **Low**.

Click **OK**.

## Steinberg Nuendo

Choose Devices > Device Setup

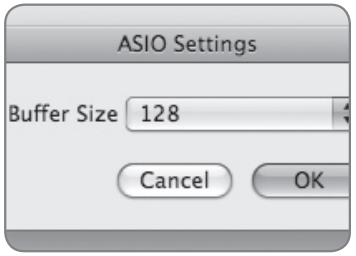
In the Devices window, click on VST Audio System.
Select **ONE** in the ASIO Driver menu.




Once ONE is recognized by Nuendo, select **ONE** in the Devices window. Click on Control Panel.

In the ASIO Settings pop-up, Set Buffer Size to an initial value of **128** and click **OK**. Please see page 22 for information on determining the best I/O Buffer Size value.

In the Device Setup window, click OK.



# Troubleshooting

***Symptom*** - There's no signal at ONE's output.
***Solution*** -

- Verify that the System Preferences Sound windows are configured as described on 13.
- Press ONE's top panel encoder until the LED is lit, and turn the encoder clockwise.
- If the LED is blinking, press and hold the encoder until the LED lights solidly.
- If there's no output after checking the items above, open Audio MIDI Setup, set Properties For to ONE, and toggle the sample rate (labelled as Format) from one setting to the other and back.

***Symptom*** - The input connected to ONE isn't getting to my audio application
***Solution*** -

- Verify in Maestro (or another control panel) that the input to which you've connected the source is active.
- See pages 25-28 for information about configuring your audio application for use with ONE.
- Increase the input gain until level is visible on the top panel meters.

***Symptom*** - When recording, the input is delayed in my headphones
***Solution*** -

- Decrease the I/O buffer size in your audio application. See page 22 for more information about setting the I/O buffer.
- Use Maestro's low latency mixer, as described on pages 16-19.

***Symptom*** - I hear clicks and pops when recording or playing back from my DAW.
***Solution*** - Problems with clicks and pops usually indicates that the I/O buffer in your DAW (audio application) is set too low. Please see page 22 for more information about setting the I/O buffer.

***Symptom*** - The meters in Maestro doesn't match ONE's top panel meters.
***Solution*** - The meters on ONE's top panel and in Apogee Maestro display the signal at different points in the signal path.

- When the encoder is set to an input, the top panel meter displays the analog signal *after* input gain has been applied but *before* conversion of the signal from analog to digital. The Input meters in Maestro display the signal *after* conversion from analog to digital.
- When the encoder is set to the output, the top panel meter displays the analog signal after the output level. This means that as the listening level is decreased, the level displayed on the top panel meters decreases as well. The Output meters in Maestro display the signal *before* the conversion from digital to analog.
- The top panel meter's red over LED only lights when the input level is displayed. To check for digital overs on the output, check Maestro's output meters. If an over occurs, reduce the output level of your audio application.

***Symptom*** - When connecting speakers to ONE, there is hum and/or buzz at the output.
***Solution*** - In most cases, a steady hum or buzz at the output is caused by grounding issues between ONE and the connected equipment. Because bus-powered USB interfaces are grounded through the USB and audio connections, and not through a 3-prong grounded AC connection, the situation may arise where the grounding configuration of the connected equipment must be modified. Check that the computer is grounded with a 3-prong AC connection.
Some experimentation may be required to find the grounding configuration that results in the lowest noise. It may be useful to disconnect all equipment except ONE, the Mac and a pair of headphones, and then connect additional equipment one piece at a time.

# Specifications

**Audio Inputs:**

- External balanced XLR mic input with +10 to 63 dB of gain; maximum input level of +14 dBu.
- 48 volt phantom power, 25 mA, available on the XLR input; switchable in software.
- Internal electret condenser microphone input with 0 to 45 dB of gain.
- External unbalanced 1/4” instrument input with 0 to 45 dB of gain; maximum input level of +11 dBu.

**Audio Outputs:**

- Stereo, unbalanced 1/8” jack; maximum output level of +12 dBu; compatible with headphones or powered speakers.

**Digital Conversion**

- 2 Channel, 24-bit, 44.1kHz or 48kHz sample rates.

**USB**

- USB 1.1
- ONE is powered through the USB bus; connection directly to one of the Mac’s USB ports is recommended.

**OS X Compatibility**

- Mac OS X Leopard 10.5.7 and above.
- Mac OS X Snow Leopard 10.6 and above (please consult our website for up-to-date compatibility information: http://support.apogeedigital.com)

**Software Control**

- Apogee Maestro.

**Please register this unit online at:**

**http://www.apogeedigital.com/register/**

## Warnings

FCC warning
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to take whatever measures necessary to correct the interference at his own expense.

## Copyright Notice

The Apogee ONE is a computer-based device, and as such contains and uses software in ROMs. This software, and all related documentation, including this User's Guide contain proprietary information which is protected by copyright laws. All rights are reserved. No part of the software and its related documentation may be copied, transferred, or modified. You may not modify, adapt, translate, lease, distribute, resell for profit or create derivative works based on the software and its related documentation or any part thereof without prior written consent from Apogee Electronics Corporation, U.S.A.

## Registration and Warranty Information

Be sure to register your ONE, either by filling in the enclosed Registration Card or by completing the on-line registration form at our Web site: http://www.apogeedigital.com/support/. If you do so, Apogee can contact you with any update information. As enhancements and upgrades are developed, you will be contacted at the registration address. Firmware updates are free for the first year of ownership unless otherwise stated. Please address any inquiries to your dealer or directly to Apogee at:

**APOGEE ELECTRONICS CORPORATION,**
**1715 Berkeley St., Santa Monica, CA 90404, USA**
**Tel: (310) 584-9394**
**Fax: (310) 584-9385**
**Email: support@apogeedigital.com**
**Web: http://www.apogeedigital.com**

APOGEE ELECTRONICS CORPORATION warrants this product to be free of defects in material and manufacture under normal use for a period of 12 months. The term of this warranty begins on the date of sale to the purchaser. Units returned for warranty repair to Apogee or an authorized Apogee warranty repair facility will be repaired or replaced at the manufacturer's option, free of charge.
ALL UNITS RETURNED TO APOGEE OR AN AUTHORIZED APOGEE REPAIR FACILITY MUST BE PREPAID, INSURED AND PROPERLY PACKAGED, PREFERABLY IN THEIR ORIGINAL BOX. Apogee reserves the right to change or improve design at any time without prior notification. Design changes are not implemented retroactively, and the incorporation of design changes into future units does not imply the availability of an upgrade to existing units.

This warranty is void if Apogee determines, in its sole business judgment, the defect to be the result of abuse, neglect, alteration or attempted repair by unauthorized personnel.

The warranties set forth above are in lieu of all other warranties, expressed or implied, and Apogee specifically disclaims any and all implied warranty of merchantability or of fitness for a particular purpose. The buyer acknowledges and agrees that in no event shall the company be held liable for any special, indirect, incidental or consequential damages, or for injury, loss or damage sustained by any person or property, that may result from this product failing to operate correctly at any time.

USA: Some states do not allow for the exclusion or limitation of implied warranties or liability for incidental or consequential damage, so the above exclusion may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

## Service Information

The ONE contains no user-serviceable components: refer to qualified service personnel for repair or upgrade. Your warranty will be voided if you tamper with the internal components. If you have any questions with regard to the above, please contact Apogee.

In the event your ONE needs to be upgraded or repaired, it is necessary to contact Apogee prior to shipping, and a Return Materials Authorization (RMA) number will be assigned. This number will serve as a reference for you and helps facilitate and expedite the return process. Apogee requires that shipments be pre-paid and insured — unless otherwise authorized in advance.

**IMPORTANT: ANY SHIPMENT THAT IS NOT PRE-PAID OR IS SENT WITHOUT AN RMA NUMBER WILL NOT BE ACCEPTED.**

## Declarations of Conformity

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits of a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Re-orient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a different circuit from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

NOTE: The use of non-shielded cable with this equipment is prohibited.
CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

Apogee Electronics Corporation, Betty Bennett, CEO.

Industry Canada Notice

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matérial brouilleur du Canada.

Declaration of Conformity – CE

Apogee Electronics Corporation hereby declares that the product, the ONE, to which this declaration relates, is in material conformity with the following standards or other normative documents:

EN55022:1998, EN55024:1998

EN61000-3-2, EN61000-3-3, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11

Declaration of Conformity – Japan

Apogee Electronics Corporation hereby declares that the ONE, to which this declaration relates, is in material conformity with the VCCI Class B standard.

Declaration of Conformity – Australia/New Zealand

Apogee Electronics Corporation hereby declares that the ONE is in material conformity with AN/NZS standard requirements.

one
by APOGEE

For FAQs and more ONE support information,
please visit the Apogee Support Website:
http://support.apogeedigital.com/

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